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GEORGE BARON AND THE MATHEMATICAL CORRESPONDENT

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SUMMARIES

George Baron immigrated to the United States from England at the end of the eighteenth century. He edited the first mathematical journal in the United States, the Mathematical Correspondent. *This journal was strongly influenced by the popular English journals that contained mathematical problems and their solutions.*

George Baron émigra de l'Angleterre aux Etats-Unis à la fin du dix-huitième siècle. Il édite le premier journal de mathématiques aux Etats-Unis, le Mathematical Correspondent. *Ce journal était fortement influencé par les journaux populaires anglais qui contenaient des problèmes mathématiques et leurs solutions.*

The known details of George Baron's life are few. He was apparently born in 1769 (National Union Catalogue Pre-1956 Imprints), somewhere in England [Vaughan 1805, 1]. Sometime, probably a short time, before June 1798, Baron came to the United States from England where he had been Master of the Mathematical Academy at South Shields, in the county of Durham. He lived in Hallowell, Maine for an unknown period of time [Baron 1804, 40] before teaching mathematics at West Point from 6 January 1801 to 11 February 1802, prior to the formal establishment of the Military Academy by Congress 16 March 1802 [Tillman, 241-242]. He probably then moved to New York City, where he was living by 1803.

In New York Baron had a school in which he taught navigation and mathematics for several years [Baron 1803, i; Anon. 1844, 647]. While living there he edited this country's first mathematical journal, the *Mathematical Correspondent*, and also published a short treatise [1803] criticizing Nathaniel Bowditch's [1802] *New American Practical Navigator*. In addition he wrote a book on navigation which he attempted, apparently without success, to have published [Baron 1803, 35; 1806]. As Baron never lists an academic degree after his name, he likely held none, either earned or honorary.

According to an anonymous article [Anon. 1844], generally attributed to R. Adrain's son Garnett [Struik 1970, 66; Coolidge 1926, 61 f.n.], Baron in 1806 offered Adrain both his school

and the editorship of the *Mathematical Correspondent*, and returned to England shortly thereafter. But certainly incorrect information in the same paragraph casts some doubt as to whether Baron returned to England in 1806 [Anon. 1844, 647]. In the *Mathematical Correspondent* it is simply stated that "Mr. Baron owing to other engagements cannot possibly be connected with editing the future numbers of the *Mathematical Correspondent*." [MC 1, 201] That Baron published an interest chart in New York in 1811 [Karpinski 1940, 183] indicates that he may have remained in New York.

Baron published only one volume of nine issues of the *Correspondent* over a period of two years (1804-1806). He then relinquished the editorship to Adrain, who published only one issue, the first of volume 2 and the last of the journal.

The *Mathematical Correspondent* was patterned after the popular journals in England that contained mathematical problems and their solutions, both furnished by subscribers. (The *Ladies' Diary* is referred to in particular.) The audience of these journals was composed of educated eighteenth century English gentlemen and ladies, who had no specialized training in mathematics [MC 1, iii-iv; Goldsmith 1953].

In their preface the editors state that although their first issue will be accessible to those with a modest knowledge of mathematics, in the "future, however, we shall gradually ascend towards the higher regions of those sciences, as far as may be thought consistent with the abilities of our readers." The goal of the journal was not only the diffusion of mathematical knowledge but, they hoped, the extension of mathematical science [MC 1, iv].

The journal consists primarily of problems, posed in one issue and answered, by correspondents, in the next. Almost all of the problems could be solved by anyone with a knowledge of elementary calculus and the rudiments of navigation and surveying Some of the problems are absurdly simple; e.g.:

> In a single throw with two dice, on what particular number is it most advantageous to bet? And what is the chance of throwing that number? [MC 1, 139],

or to show that:

$$\sqrt{3} \,/\, (2 + \sqrt{3}) = (2\sqrt{3} - 3). \quad \text{[MC 1, 187]}$$

But many of the problems are interesting and reasonably challenging, even if not requiring sophisticated mathematics for their solutions.

Perhaps the most significant problem was both proposed and solved by Robert Adrain [MC 1, 149-153]. He asks "To determine the nature of *catenaria volvens*, or the figure which a perfectly

flexible chain of uniform density and thickness will assume, when it revolves with a constant angular velocity about an axis, to which it is fastened at its extremities, in free and non gravitating spaces."

Apparently Adrain was the first mathematician to consider this problem. He showed its solution led to an elliptical integral, which of course he was unable to evaluate (Kline 1972, 411-422, 644-651). The problem was solved quite independently by Alfred Clebsch in 1860 as part of a more inclusive theory [Coolidge 1926, 65].

In addition to the problems, several articles appear in the *Correspondent*, including two by Baron himself, one in two parts on proportion and another on the definition of the word "power" in arithmetic and algebra [MC 1, 1-15, 59-66, 83-89]. There are also three articles by Robert Adrain: "Observations on the Study of Mathematics," one on "the motion of a ship steered on a given point of the compass," and a two part article on "Diophantine algebra" [MC 1, 103-114; 212-241; 2, 7-17; 17-22]. The latter is credited to be the first treatise on the subject published in America [Coolidge 1926, 66]. There are also some reprinted articles, including one on fluxions by S. Vince [MC 1, 132-138, 155-163] and part of Francis Baron Maseres' *Dissertation on the Use of the Negative Sign in Algebra* [MC 1, 175-186, 201-212].

Baron's articles in the *Correspondent* deal primarily with attempts to redefine and clarify concepts and ideas which he felt were obscure, misleading, or ambiguous. Much of what he says is not without justification. For example, in his first article on proportion [MC 1, 4] he alleges the absurdity in contemporary arithmetics [De Morgan 1847, xxi-xxii, 62; Cajori 1890, 13-18; Pike 1788, 123] of multiplying pounds by shillings, pounds by pounds, etc.. Quite typically, his discussion is supercilious and includes one example, feet times feet, which has an obvious and useful physical interpretation: "Hence a number of one kind cannot be multiplied by a number either of the same or of a different kind: 3 *l* cannot be multiplied by 5 *l*; 7 feet cannot be multiplied by 4 feet; nor can 6 bears be multiplied by 9 asses. All such questions are evidently unscientific and absurd, and serve only to demonstrate the ignorance and stupidity of their authors." [MC 1, 4]

In his article on powers [MC 1, 59-66] Baron criticizes, but largely misinterprets and distorts, the contemporary definition of the power of a number, gives a substitute definition, and derives several results, including that $0^0 = 1$ [1]. Pike [1788, 194-195] had defined powers of numbers adequately for positive integral exponents and attempted no more. Baron's definition has the advantage that he can easily extend it to the zeroth power, which he does.

A prominent aspect of both the *Mathematical Correspondent* and Baron's work published elsewhere is biting criticism and scorn for other mathematicians and their works. Baron's first publication with which I am familiar is a short note in the *Memoirs of the American Academy of Arts and Sciences* [1804, 40-42] This article tactfully exhibits a flaw in James Winthrop's unfortunate attempt to duplicate the cube [Winthrop 1793a]. Baron fails to comment upon an immediately following article of Winthrop's in which he gives a correct method for trisecting an angle [Winthrop 1793b] [2].

Baron's next object of criticism was Nathaniel Bowditch and his newly published *American Practical Navigator* [Baron 1803; MC 1, 82, 187, 192-196]. This time he maintains a supercilious air, and his criticisms are sarcastic and biting. Baron also derides [MC 1, 63, 124] Jared Mansfield, professor of mathematics at West Point, and his newly published *Essays, Mathematical and Physical* [1802]. An anonymous contributor, A. Rabbit, supplied several items that denounced many of the newly written American arithmetics and their authors [MC 1 90, 93, 139, 142, 163, 165].

Apparently Baron managed to offend privately several people that he did not criticize publicly in his journal. When Adrain took over the editorship of the journal, he found it necessary to state [MC 2, vi]:

> *The editor begs leave to assure the friends of science and of man, that nothing unbecoming a Christian and a gentleman shall be suffered to make its appearance in the work as long as it shall be under his direction. No affected superiority shall be shewn, nor contemptuous treatment of such as differ from us in opinion, or fall into errors. Let a just sense of our own imperfections teach us moderation in our judgement of others; and let us endeavor to shew that we are influenced by the noblest motives, the love of elegant and useful science and the benefit of mankind.*

And Adrain singles out both Thomas Maughan of Quebec and John D. Craig of Philadelphia, two prolific contributors to the first volume of the *Correspondent*, for a special apology even though their work was not criticized in the journal, and Maughan was one of Baron's chief supporters in his attack on Bowditch [MC 2, v].

Many of Baron's criticisms and those in his journal deal with trifling matters. Others, though more substantive, are either ill-timed, tactless or unconstructive. For example A. Rabbit, in one of his denunciations of arithmetics by American authors, states [MC 1, 93]:

> *In this country authors of arithmetic have lately sprung up like a parcel of mushrooms, and it would*

> *have been well for the young and rising generation had the former been as harmless as the latter. These upstart authors have most perniciously corrupted, distorted, and degraded the noble and useful science of numbers, and metamorphosed our sons into mere counting machines moving according to a heterogeneous collection of unscientific and stupid rules. A good book in arithmetic is much wanted in America, but so long as the wretched productions of Pike, Walsh, Shepherd, and Co. are encouraged, we cannot expect a man of talents to enroll his name in our list of numerical authors.*

The only text that Rabbit singles out for specific criticism is Shepherd's *Columbian Accountant*, a moderate success with at least three editions [Karpinski 1940, 132]. I have been unable to examine this text, and in only one instance is enough information given to judge the fairness of Rabbit's criticism. In this case Rabbit goes into a tirade about what amounts to a difference of interpretation of what is asked for in one of Shepherd's problems. And, though the problem is not a particularly good one, Shepherd's interpretation is really the only possible one.

Certainly there was considerable reason to criticize the arithmetic texts used in America in the early nineteenth century. Until about the second quarter of the century all arithmetical texts in this country were either American editions of English works or American works that were closely patterned after their English counterparts [Karpinski 1925, 73-99; Cajori 1890, 48]. All these books were greatly influenced by Edward Cocker's arithmetic, published in the late seventeenth century [Cajori 1890, 13]. This book was directed toward commercial users of arithmetic, and consisted of lists of rules without demonstration. De Morgan notes [1847, xxi-xxii]:

> *To the commercial school of arithmeticians above noted we owe the destruction of demonstrative arithmetic in this country* [England--E.R.H.], *or rather the prevention of its growth. It never was much the habit of arithmeticians to prove their rules, and the very word* proof, *in that science, never came to mean more than a test of the correctness of a particular operation, by reversing the process, casting out the nines, or the like. As soon as attention was fairly diverted to arithmetic for commercial purposes alone, such rational explanations as had been handed down from the writers of the sixteenth century began to disappear, and was finally extinct in the work of Cocker....*

Although there is much to criticize in the arithmetics of the "Cocker school", it was unfortunate to single out the arithmetics by American authors for criticism for two reasons. First many of them were at least no worse than their English contemporaries. Pike's arithmetic, the first successful one by an American author, could be viewed with some justification as a modest improvement over the most successful British arithmetic in the United States of the time, Dilworth's *School Master's Assistant* [Cajori 1890, 14-18]. Until Warren Colburn introduced the methods of Pestollotzi into this country in the 1820's, there were few significant changes in the arithmetic texts used [Cajori 1890, 106-107]. Baron and his journal were only following in a long tradition of complaint, without offering a viable alternative.

> *Towards the end of the last (eighteenth) century, we see a succession of works, arising one after the other, all complaining of the state into which arithmetic had fallen, all professing to give rational explanation, and hardly one making a single step in advance of its predecessors.* [De Morgan 1847, xxii].

The second unfortunate aspect of the *Mathematical Correspondent*'s criticisms was that they not only alienated their subscribers, but appeared to be and were interpreted to be directly opposed to the nationalism, which extended to science, of the new country [Daniels 1971, 131-145; Reingold 1964, 13]. Pike's arithmetic, when published, was thought to be the first arithmetic written in the United States [3], and many were proud of the work as an American accomplishment. An endorsement by Harvard professors [Pike 1788, 516] states:

> *We are happy to see so useful an American production, which, if it should meet the encouragement it deserves, among the inhabitants of the United States, will save much money in the country, which would otherwise be sent to Europe for publications of this type.*

George Washington praised the "first" American arithmetic in a letter to its author dated 20 June 1788 [Ingals 1954, 409-410]:

> *I flatter myself that the idea of its being an American production, and the first of the kind which has appeared, will induce every patriotic and liberal character to give it all the countenance and patronage in his power. In all events, you may rest assured that as no person takes more interest in the encouragement of the American Genius, so no one will be more highly gratified with the success of your ingenious, arduous and*

useful undertaking, than he who has the pleasure to subscribe himself with esteem and regard, sir, your most obedient and very humble servant,

G. Washington

Although Pike's arithmetic was successful, and Pike made a significant contribution to American mathematics, he hardly met with the success of Nathaniel Bowditch and his *New American Practical Navigator* [Bowditch, N.I. 1840]. Bowditch and Robert Adrain share the distinction of being the first creative American mathematicians [Struik 1970, 66]. Bowditch was a prime target of Baron's scorn. On 26 March 1803 in New York City Baron delivered an address which was later published as a pamphlet [Baron 1803] entitled "Exhibition of the Genuine Principles of Common Navigation, with a Complete Refutation of the False and Spurious Principles Ignorantly Imposed on the Public in the 'New American Practical Navigator.' " Baron finds many points upon which to ridicule Bowditch, but he is usually being pedantic. One of his prime targets is Bowditch's interpretations of plane sailing as sailing assuming the earth is a plane. Baron is supported in this view by Thomas Maughan of Quebec in two articles in the *Mathematical Correspondent* [MC 1 80-82; 192-195]. But Bowditch's interpretation [1802, 82-91] appears to be valid, and avoids a discussion of the loxodrome curve, which would likely be confusing and overwhelming to the average seaman. Despite the small grounds for criticism, Baron shows no tact or restraint in his criticisms. After quoting a short passage concerning plane sailing, he comments: "Here we behold a ignoramus dreaming that *plain* sailing implies sailing on a plane, and ought to be denominated *plane* sailing." [Baron 1803, 26] Later he states: "... Mr. Bowditch's straight line is a delusive phantom, existing like the witches of Salem, only in the imagination of ignorance and folly." [*ibid.*, 27]

Baron continues his criticism for several pages and then recommends to his readers a new treatise on navigation, *The Complete Navigator*, written by Andrew Mackay, F. R. S., which would soon be in print. At the end of the lecture Baron also appends a notice that he, himself, will soon publish a work on navigation [*ibid.*, 34-35].

Bowditch's book was in fact a revision of John Hamilton Moore's *The Practical Navigator*. Bowditch had made two revisions of Moore's book, when he decided that he had sufficiently changed the work to publish it as a separate work under his own name. Edward M. Blunt, Bowditch's publisher, took a copy of Bowditch's book, which contained over 8,000 corrections to Moore's tables, to Moore's publishers in England, from whom he had some years earlier pirated Moore's book. He succeeded in selling the single copy of Bowditch to the publishers (Moore, John and James Hardy, and Steele) with the understanding that he delay publication in

America so that they could introduce the book concurrently in England.

But before the English publishers printed the book it was revised by Thomas Kirby, teacher of mathematics and nautical astronomy, who introduced many errors. Mackay in *The Complete Navigator* attacked Bowditch's *Navigator* on the basis of Kirby's mistakes; indeed he exhibited no mistakes that were not made by Kirby. Bowditch clarified this matter in the next edition (1807) of the *New American Practical Navigator*, but Mackay still derided Bowditch's work on the same grounds in 1846 in a later edition of his own book [Pickering 1846, lxiv-lxv].

As Baron mentions [Baron 1803, 34] that he was corresponding with Mackay, the possibility exists that Baron was conspiring with Mackay to discredit Bowditch's *Navigator*. But he may not necessarily have done so. Baron apparently did base his criticisms upon the American edition of Bowditch's book (all of his quotations match the American edition exactly) and Baron, unlike Mackay, bases his criticisms on the text of the book and not on the tables, which were excellent in the American edition.

The negative attitude towards American mathematicians that Baron and some contributors to the *Mathematical Correspondent* exhibited is judged by Cajori [1890, 94] to be the principal cause of the journal's demise. This certainly was a factor, but the fact that despite many attempts, the first mathematical journal published in this country which could be termed successful, the *Analyst* of Des Moines, Iowa, did not commence publication until 1874, indicates that this was probably not the only, or even the crucial factor. One important problem was that the journal had great trouble collecting payment for its subscriptions, a problem common to most early American scientific journals [Daniels 1971, 151]. *Siliman's Journal* was troubled by the same problem. But probably the crucial factor was simply that there were too few people in the United States who were interested in mathematics. And most of these lacked any kind of serious interest. Though the *Mathematical Correspondent* lists almost 350 subscribers, probably only a handful of these men made their livings from mathematics. Early nineteenth century American mathematics was dominated by the amateur, not the professional. Both Dewitt Clinton and Alexander Hamilton are listed as subscribers. One is a bit surprised not to see Jefferson's name among them.

In addition there were other journals, not solely devoted to mathematics, which competed with the *Mathematical Correspondent*. Several periodicals had problem sections that contained problems similar to those in the *Correspondent* (See Karpinski [1940] for a complete listing), although the mathematical problem sections were often soon dropped, apparently due to lack of interest. Both the *Transactions of the American Philosophical Society* and the *Memoirs of the American Academy of Arts and Sciences* had

sections devoted to articles dealing with mathematics and astronomy. Americans also contributed to, and read various European journals.

The type of supercilious sarcasm that Baron and his journal used was also very apparent in the serial publications for the educated English gentleman after which the *Correspondent* was patterned [Goldsmith 1953]. Such writing was most likely very appealing to many subscribers; it is in many ways amusing and entertaining to read. But as it was seldom, if ever, based on anything but misconceptions and trivia, it was offensive to a serious scholar. The only mathematician of any repute who regularly contributed to the corresponding British publications was Thomas Simpson. Others avoided contributing to these journals or usually used a pseudonym. Unfortunately the *Mathematical Correspondent* was not only the one American journal for the educated nonmathematician, it was America's only mathematical journal. And more serious mathematicians, like Robert Adrain and Robert Patterson, undoubtedly saw it as a chief vehicle for more serious mathematics, which would be of little interest to many of the subscribers. There were probably too few men in America to support a strictly popular journal, on the one hand, or a more serious journal, on the other. And that a combination of the two would unlikely be satisfactory to either group was probably a chief reason for the failure of so many attempts.

The *Mathematical Correspondent* was written by and for a group of men to whom mathematics was closely associated with navigation, surveying and other applications [Smith and Ginsburg 1934, 42-46, 73-74, 83-84; Reingold 1964, 60]. In such a journal there seems to be an unusual, even an excessive, interest in what appears to be rigor. For instance, Baron gives a proof of the commutative law for positive integers. He and others are very concerned with definitions and their meanings [MC 1, 9, 16-17, 53-66, 115, 117-118]. Francis Masere's essay on the impossibility of negative numbers is reprinted in the journal, and Baron ridicules the idea of a negative number in several places [MC 1, 124, 175-186, 201-212]. Some of this interest in rigor was undoubtedly a reaction to the extremely utilitarian use of mathematics throughout the eighteenth century and to the wordy and ambiguous definitions that were standard in contemporary mathematical texts. During the eighteenth century more than any other mathematics was regarded as merely a tool to solve problems in astronomy and physics [Kline 1972, 597, 616-622; Struik 1948, 201]. In this context it is instructive to observe that a lack of attention to detail eventually confused and troubled even men whose interests in mathematics were largely practical.

But the interest in detail in the *Mathematical Correspondent* was not solely, and likely not even primarily, a reaction against eighteenth century mathematics. A more probable explanation is simply the poor ability of the editor and many of the contributors

Baron's discussions of definitions and concepts were almost never productive and consistently lacked insight. Typical of his elucidating statements is the observation that "Numbers are composed of units, but a unit is not a number; if a book be said to consist of leaves, it is plain that a leaf is not a book." [MC 1, 85 f.n.]

The lack of mathematical ability and fondness for controversy that typified Baron's work and much of the material in his journal were common features in the English journals that served as the *Correspondent*'s prototypes. And the insights of the British amateurs were usually no more edifying than those of the Americans [4].

Although it seems somewhat surprising that such a successful work as Bowditch's *New American Practical Navigator* would be treated with such scorn and contempt by Baron, even Newton and his work were ridiculed in the English journals, despite the extraordinary regard for Newton in eighteenth and early nineteenth century England. In 1809 Thomas Taylor, a prolific but unscholarly classicist, edited a book entitled *Elements of the True Arithmetic of Infinities*. In the preface he announced that he had "demonstrated all the propositions of Dr. Wallis' *Arithmetic of Infinities* and also all the principles of the *Doctrine of Fluxions* to be false." (Quoted by Goldsmith [1953, 255]) In the *Monthly Magazine* (31 May 1811, 314-19), he characterized Newton as "a rambling and precipitate genius, but a perpetual blunderer." (Quoted by Goldsmith [1953, 255]). Taylor's book started a dispute with W. Saint, a competent mathematician, in the pages of the *Monthly Magazine* in which Taylor's attitude, interests and statements were remarkably like those of Baron's.

Other amateurs in America also exhibited an interest in detail that was more indicative of a lack of understanding than an attempt to resolve serious difficulties. In a manuscript of a paper delivered before the American Philosophical Society, Benjamin Vaughan, a well-educated and highly capable nonmathematician discusses and expands upon Baron's article on the definition of power. Although caustic and arrogant criticism is completely absent from Vaughan's paper, he is still very concerned with minutiae, and the quality and substance of Vaughan's work is not far from Baron's.

In contrast to the preoccupation with rigor in the *Mathematical Correspondent* is Robert Adrain's short-lived journal published in 1808, *The Analyst or Mathematical Museum*. It not only lacks the petty criticism and supercilious air of Baron's journal, but none of its contributors deal in unproductive metaphysical discussions. The *Analyst* is dominated by men of considerable mathematical ability Adrain himself, Nathaniel Bowditch, Robert Patterson, Frederick Hassler, and John Gummere. Adrain was not uninterested in mathematical definitions or rigor. In his edition of Hutton's *Course of Mathematics* [1812, x, 173], he changed one

of Hutton's definitions unobtrusively and productively.

The overriding reason for the preoccupation with apparent rigor in Baron's journal, and indeed in the difference between Baron's journal and Adrain's, is the difference between the serious mathematician and the dilettante. Vaughan clearly, if inadvertantly, exhibits the difference between these two types of mathematics and mathematicians when he states: " ... a second source of error in mathematical investigation lies in the self-deception produced in mathematicians, by the confidence due to *some* of the principles, which confidence they extend to other points less deserving it. This self-deception prevails the more readily, as their pursuits are often so obtruse or uninteresting, that most who are not professed mathematicians, are either seldom able or are seldom disposed to scrutinize their mistakes." (Vaughan 1805, 48-49)

Vaughan's sentiments are remarkable close to those of a contemporary reviewer in a popular English journal: "Dr. Waring is generally considered as one of the most profound analysts of our age, but this, as well as most of his other papers, which have appeared in the transactions are so abstruse and unimportant, that it is not easy to decypher them, or to say what purpose they are intended to answer. In the present paper, there is scarcely a single line which is not involved in algebraical symbols, except the title, so that any abstract or analysis of it would be wholly unintelligible. Till Dr. W., therefore, chuses to make himself more perspicuous and useful, we must content ourselves with barely enumerating his communications, without attempting to elucidate them. But, perhaps, the doctor, like some mathematicians of old, may wish to place his sublime science out of the reach of the vulgar; and if so, he has taken the most effective means to accomplish the purpose." (*Analytical Review* (1788), 3 (February, 1789), 31. Quoted by Goldsmith [1953, 258].)

Despite the low quality of the *Mathematical Correspondent*, it did make some positive contributions to the development of American mathematics. It at least gave Adrain and others an opportunity to read and publish articles and problems. But in the *Mathematical Correspondent* we see not only the ill effects of the English influence on American mathematics [Richeson 1946], we see an influence by the worst of British mathematics, the mathematics of the educated English gentleman with its lack of scholarship, its personal bickerings and preoccupation with trivia

NOTES

1. Mansfield [1802, 15] says that the widely read William Emerson asserts that $0^0 = 1$ (presumably in his *Treatise on Algebra*, 2nd edition, London 1780). But an article in 1751 in the *Ladies' Diary* by Fluxioniensis: "The Nature and Use of the Algebraic Cypher, or Quantity 0," gives some indication that 0^0 is indeterminate [Cajori 1919, 219-220]. Benjamin Vaughan [Vaughan 1805, 45 f.n.] also seems to have recognized this.

2. Winthrop's trisection of the angle is, of course, not restricted to a straight edge and compass. J. Mansfield [1810] gives a more penetrating contemporary commentary on James Winthrop's papers.

3. Isaac Greenwood's 1729 *Arithmetick Vulgar and Decimal*, Boston (S. Kneel and T. Green) actually appears to be the first arithmetic written in what is now the United States [Karpinski 1925, 86; Smith and Ginsburg 1924, 21-22; Cajori 1890, 14].

4. [Goldsmith 1953, 255-256; Cajori 1919, 207-224] For an example of an extended controversy see the *Gentleman's Magazine* 6 (1736), 476, 655-656, 739, 7 (1737), 25, 77, 134-135, 151, 202-203, 229-230, 274.

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